

Energy Efficiency Education as a Cost Effective Resource Program

Behavior, Energy and Climate Change Conference
2011

Merrilee Harrigan
Vice President, Education
Alliance to Save Energy



ALLIANCE TO
SAVE ENERGY
Creating an Energy-Efficient World

What is the Alliance to Save Energy?



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Mission:

- To promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security.

Organization:

- Staffed by 80+ professionals
- 34 years of experience
- \$15 million annual budget
- Recognized as the premier energy efficiency organization in the world

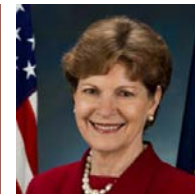
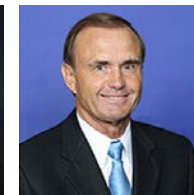
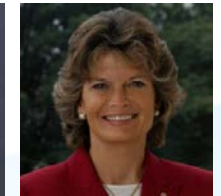
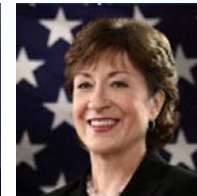


What is the Alliance to Save Energy?



The Alliance to Save Energy promotes energy efficiency worldwide to achieve a healthier economy, a cleaner environment and greater energy security.

- Non-profit organization headquartered in U.S.; operations world-wide
- Led by **Senator Mark Warner (D-Va.)** and **Tom King, Chairman of the Board, and President, National Grid USA**
- Includes 14 Members of Congress – Bi-Cameral; Bi-Partisan
- Also includes environmental, consumer, and trade association heads, state and local policy makers, corporate executives



Schools Are an Important Focus for Efficiency Programs



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- Schools are large energy users
- DOE estimates that at least 25% is wasted

But, even more important, they are an opportunity to reach young people and transform the way we value energy efficiency.

Why Students?



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

1. Deep learning
2. Advocacy for energy efficiency.
3. Children influence their families
4. Students can drive school energy savings

Deep Learning



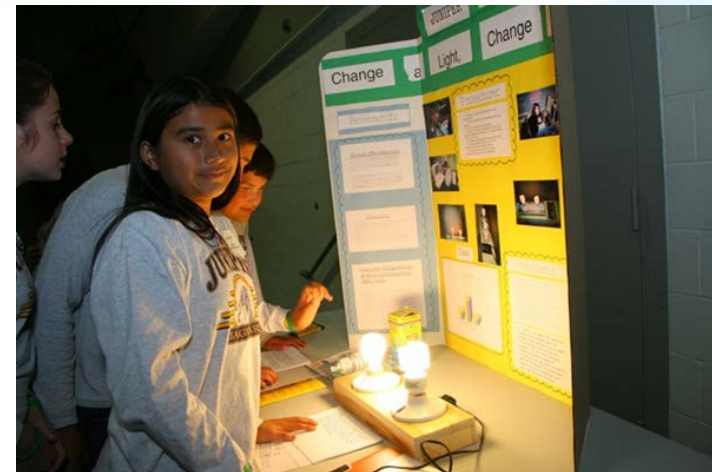
ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- Educating adults to value efficiency is **hard**
- Students' job is learning; they can learn in depth about the role of energy, why energy efficiency is critical, and how to achieve energy savings.
- Opportunity to “set” a lifetime of efficiency behaviors



Salisbury Sisyphus.
"Slendering task!"
"Death will the years, and will the restless soul,
The wheeling goes up the precipitous ground,
The sudden slow round, the pull rebound!"



Students as Advocates for Efficiency NOW



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- When students are engaged in hands-on, real world learning about energy efficiency, and experience the impact of energy efficiency savings, they:
 - Change their own use of energy
 - Influence their families
- Become advocates for efficiency



Students Drive Family Efficiency

Actions



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- Alliance experience: 28,000 CFL exchanges, parent signature verification
- Research:
 - 83% of parents said children initiated conversation on the environment
 - 71% said children influenced purchase or behavior change

Students Can Lead to Way to Energy Savings at School



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- Energy relates to science, math language arts, and the school is a hands-on learning lab
- Student research and analysis can identify energy waste, and make recommendations for saving strategies
- Alliance has 15-year track record of student-driven school energy savings -- averaging 5–15% from no-cost behavior and operations changes
- Students as EE professionals of tomorrow





ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Can/Will Schools Teach EE?

YES (done right!)

- Relevance: energy learning ties in to any academic subject
- Permission: correlate to state standards
- Value: using the building as a learning lab
- Leadership: students can be teachers, leaders

Transforming the Market



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Where can we find the funding to take advantage of the opportunity to transform how the next generation regards, values and uses energy?

Does teaching energy efficiency save energy?

How does Educating Students Lead to Savings?



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

4 types of education programs:

- Workshops, curriculum for teachers
- Curriculum plus student take-home, low-cost retrofits
- Assemblies
- Curriculum plus year-long support for student energy efficiency activities



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Workshops

- Workshops for teachers, integrating energy into curriculum
 - Correlated to national standards
 - Broad reach
 - High quality curriculum
 - Teachers can run with it
 - Example: NEED
- Energy Savings: long term, hard to measure

Curriculum plus Take-home Measures



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- Focus on residential
 - Curriculum for one grade level
 - Focus on low-cost take-home materials
 - CFLs, showerheads, faucet aerators
 - Example: LivingWise

- Energy savings: student take-home retrofit items count towards utility goals



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Assemblies

- One-time event
- Reach large numbers of students
- Exciting, energizing for students
- Examples:
 - Energy Hog
 - Alliance for Climate Education
- Energy savings: long term, hard to measure

Full Year Program, School Savings Focus



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Workshop plus year-long support

- Local project leader visits schools each month
- Curriculum correlated to state standards
- Energy audit training for secondary students
- Teacher stipends, energy tracking, return of savings
- Example: Alliance's Green Schools Program

Program

Energy savings: school savings calculated through bill analysis; a few utilities count towards goals



How Utilities/Regulators Consider Energy Efficiency Education



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- Most utilities can “count” savings from programs with student take-home items
- School behavior and operations (B&O) savings are beginning to be counted but there are issues:
 - Longevity of savings
 - Hard to find a control group
- No ability to count savings/value from:
 - Market transformation; future citizens making efficient choices
 - Students teaching families
 - Advocacy from young people (communities, colleges)
 - Academic learning, workforce development

Recommendation #1: Require Utilities to Include School Programs as a Long Term EE Investment

Regulators should ask utilities to offer programs that:

- **support teachers** to use energy as a basis for hands-on learning
- **involve students** in problem-solving about school energy waste and devise campaigns to solve
- **Include diagnostic tools** for collecting data
- Focus on **no-cost** behavior and operations savings



Recommendation #2: Measure B&O Savings and Count Towards Goals



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- Use bill analysis program to calculate behavior and operations savings against a baseline
- Encourage school district to recognize savings (return a percentage of avoided costs)
- Savings should be made visible to parents and entire school community



Recommendation #3: Use Different Cost Benefit Calculation



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

- 43 states use some type of benefit-cost test for ratepayer funded energy efficiency programs
- Total Resource Cost (TRC) test is the primary test in 70% of these cases (and is considered in 81% of cases)*
- The TRC test counts all costs but does not value non-energy benefits and can be a barrier to cost effective energy efficiency programs

*Martin Kushler, *Non-energy Benefits and Cost Effectiveness National Survey Results*, 2011



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Recommendation #3: cont'd

- Energy education programs merit more modest cost-benefit requirements than retrofit programs
- Count savings, but recognize the long-term, hard-to-measure benefits of preparing the next generation of energy consumers and professionals, and strengthening science and math learning.



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Conclusions

- Energy education programs have long and short term value that should be recognized
- Education programs with measurable energy savings should be able to be count towards goals based on credible bill analysis.
- Energy efficiency programs providing measurable savings should be measured with broader cost benefit calculations to account for their true value.

Contact Information



ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

Merrilee Harrigan

mharrigan@ase.org

202-530-2215

Alliance to Save Energy

Ase.org